

uppermost spots of the discal band. The remainder of the discal band is represented very obscurely by the outer edges of the spots only, forming a very much broken wavy semicircular row of short curved dark lines. There is the outline of a long oval spot across cell end, and indications of three or four small spots between it and the inner margin. A small black spot is present at the anal angle, and another just to side of base of tail in area 2, both bordered proximally with metallic blue scaling, which is also present marginally in two small patches between these spots.

Head dark brown with a small white spot between the antennæ; the eyes, except dorsally, ringed with white; palpi white, the third joint and half the second dorsally and laterally only, brown. Thorax, above, covered with longish bronze-green hairs; below, white. Body dark brown, ventrally pale-buffish.

♀. Both wings above uniformly dark smoky brown, with no trace of blue or bluish reflections. Otherwise exactly similar to the ♂.

Length of fore wing, ♂ 2.0 cm., ♀ 1.9 cm.

B.M. Types No. Rh. 061 (♂) and 062 (♀) from Nakiadeniya, 16 miles from Galle, S. Ceylon, iv, 17, W. Ormiston.

Several other specimens in Coll. Ormiston.

This species seems to be nearest to *A. alitæus*, Hew., and *A. mirabella*, Doherty, but it can at once be separated from any Indian *Arhopala* known to me by its ashy-grey underside and plain brown female.

Natural History Museum,
South Kensington;
March 12th, 1920.

A CHALCID PARASITE OF *ENDOMYCHUS COCCINEUS*, LINN.

BY C. T. GIMMINGHAM, F.I.C., F.E.S.

IN view of the comparatively few records of Hymenopterous parasites of Coleoptera, the following notes may be of interest.

On June 3rd, 1919, in a wood at Long Ashton, near Bristol, I came across a small mass of rather dry and shrivelled fungus at the base of a dead beech-tree, in which were crowded considerable numbers of the pupæ of a beetle, afterwards found to be *Endomychus coccineus*. These pupæ were a strikingly bright pink colour, with white limbs and black eyes, the whole body being covered with short, stout hairs, each with a glistening white knob at the end. There were two mushroom-shaped cerci at the apex of the abdomen, to which, in many cases, the black shrivelled remnants of the larval skin were attached. The average size was 6 mm. long and 3.5 mm. broad.

A portion of the fungus, containing about sixty of these pupæ,

was brought home, and on June 16th one was noticed just becoming adult. The elytra were then of a very beautiful pearly shell-pink colour with no trace of spots, the thorax and abdomen a deep salmon-pink with almost an orange tint and the legs and antennæ brown. Later in the evening the posterior spots on the elytra were faintly indicated by darker areas, and by the next morning all four dark spots were well marked, the ground-colour of the elytra remaining pink, while the thorax had deepened somewhat in colour. During the following days many more specimens became adult, though the final deep red colour of the elytra only developed very slowly, and it was not until July 3rd that the majority had assumed the typical appearance of *Endomychus coccineus*. During this period and for some long time afterwards the beetles showed no disposition to leave the fungus.

When first taken all the pupæ were alike in appearance so far as was observed, but about June 16th it was noticed that in a number of cases development was apparently not proceeding normally. Some of the pupæ had turned dark brown, the outer skin becoming harder and more chitinous and the abdomen completely changing in shape, becoming curiously elongated, narrower and cylindrical. Parasitism was suspected and these brown pupæ were isolated and kept under observation.

No further change was observed until July 11th (some days after all the healthy pupæ had become adult), when one or two were found to have small round holes in the back and a number of Chalcids were found in the box. On making a hole in another from which the parasites had not yet emerged, six of the parasites immediately crawled out and hopped about apparently fully developed. There was still a good deal of fluid in this pupa case. The flies were packed in the anterior two-thirds. During the next few days the parasites emerged from the remaining pupæ, and of ten cases in which the number of flies hatching from a single pupa was noted, eight produced 5 ♀ ♀ and 1 ♂ each (the ♂ much smaller than the ♀ ♀), one produced 6 ♀ ♀ and 1 ♂, and one 5 ♀ ♀ only. Of the total number of 65 pupæ originally taken, 25 became adult beetles, 26 were known to be parasitised and the remainder died or were killed at an early stage.

With regard to the identity of the Chalcid, the following reference to a parasite of *Endomychus coccineus*, which occurs in Curtis' description of this beetle ('British Entomology,' vol. ii, p. 570), is of interest: "Neither Latreille nor any author that I can remember has characterised the larvæ of *Endomychus*, and having found a considerable number. . . . I shall proceed to their description and history. In pulling the bark off the decayed stump of a fir-tree I saw some larvæ apparently entangled in a white cottony web, which I at first thought were

young glow-worms. On removing them I discovered that they were of various sizes; they moved slowly and some of the largest seemed as if they were either dead or in a torpid state, but these proved to have been punctured by a little parasite allied to *Gnatho dispar* (Colax, pl. 166), a great number of which afterwards hatched. The larvæ were of a dead deep chocolate colour, but ferruginous beneath. . . . In three weeks some of these larvæ became pupæ of a deep ochreous colour, but they soon died."

The *Colax dispar* figured on Pl. 166, 'British Entomology,' vol. iii, is not, however, identical with the Chalcid now observed (this is confirmed by Mr. Box), and it was not possible to discover in the present case whether parasitism actually took place before or after pupation. The passage quoted above does not, unfortunately, make it clear how the identity of the larvæ was established, and although the description "pupæ of a deep ochreous colour" might do for parasitised *Endomychus* pupæ, it could not possibly refer to healthy ones. Westwood ('Mod. Class. Insects,' vol. i, p. 394) mentions the observations of Curtis, and Walker published a short description ('Ent. Mag.,' 1836, p. 496) of the parasite from Curtis' MS., naming it *Pteromalus Endomychi* (see also Elliott and Morley in 'Trans. Ent. Soc.,' 1907, p. 12, and 1911, p. 456). There is also a description of a Chalcid parasite from an *Endomychus* sp., in a paper on "Parasitic Hymenoptera" by Ashmead ('Trans. Amer. Ent. Soc.,' 1896, p. 227), to which Mr. Claude Morley kindly referred me. This species, described as *Endomychobius flavipes*, sp. n., from "one ♂ and six ♀ specimens bred from the supposed larva of *Endomychus biguttatus*, Say," from Columbia, is, however, evidently not the same as the present insect.

Mr. Morley, who examined my specimens, is of opinion that they are undoubtedly the same species as that described by Walker as *Pteromalus Endomychi*. The description, however, does not apply to Curtis's figure of *Colax dispar*, which is unquestionably a different insect. Walker states that his description is from a male specimen, but Mr. L. A. Box kindly tells me he considers that it really refers to the female. He says, *in litt.*: "The ♂ has the antennæ shorter and entirely fulvous. In the ♀ the abdomen is almost circular and in colour as described by Walker. In the ♂ the abdomen is narrower, the sides being parallel, and æneous or dark except the base, which is fulvous."

In view of the interest attaching to this confirmation of an old record, it would seem worth re-publishing Walker's original description,* with one or two notes by Mr. Box.

"Sp. 163. *Pteromalus endomychi* (Curtis MSS.). Mas:

* Walker, 'Ent. Mag.,' 1836, p. 496.

Aeneus, antennæ nigro-fuscæ, abdomen basi fulvum, pedes fulvi, alæ limpidae. Corpus crassum, latum; caput thorace paullo latius; antennæ subfiliformes, corporis dimidio longiores; articuli 5₀ ad 10 mm. breves, cyathiformes, subæquales; clava longi-ovata, articulo 10₀ angustior et plus duplo longior; thorax ovatus; prothorax brevissimus; mesothoraxis parapsidum suturæ vix conspicuæ; metathorax brevis; abdomen rhombiforme, thorace brevius, segmentum 1 mm. maximum; sequentia brevissima; alæ sat latæ; nervus cubitalis radiali multo brevior.

"Aeneus; oculi rufo-picei* ; antennæ nigro-fuscæ; articuli 1us et 2us fulvi†; abdomen fulvum, nitens, apice æneum; pedes fulvi; coxæ æneæ; meso- et metatarsi flavi, apice fusci; alæ limpidae; squamulae et nevoi fulva, stigma obscurius, minutum. (Corp. long. lin. 1; alar. lin. 1½.)"

AN UNDESCRIBED SPECIES OF PTYCHOPTERA FROM WEST AFRICA (PTYCHOPTERIDÆ, DIPTERA).

BY CHARLES P. ALEXANDER, PH.D., URBANA, ILLINOIS.

THE very extensive collections of African crane-flies belonging to the British Museum (Natural History) were sent to me for study through the kindness of Mr. F. W. Edwards, custodian of the Nematoceros Diptera. A new species of *Ptychoptera* that is described herewith was included in this material. The crane-flies of this collection will be described and keyed in a monographic revision of the Ethiopian Tipuloidea that the writer has in preparation. I wish to thank Mr. Edwards very sincerely for the privilege of studying this unrivalled collection of tropical African crane-flies.

Ptychoptera africana, sp. n.

Antennæ with the basal segments yellow, the distal segments dark brown; head blue-black; mesonotal præscutum shiny metallic blue; pleura light reddish-yellow; wings with the costal margin, the broad apex and a narrow seam along the cord dark brown; abdomen shiny black, the tergites with two narrow yellow rings on the third and fourth segments.

Female.—Length about 9 mm.; wing, 7.8 mm.

Rostrum dark brown; palpi with the basal two segments dull yellow, the terminal segments dark brown. Antennæ with the basal segments dull yellow, on the sixth and succeeding segments passing into dark brown; basal half of the second scapal segment dark brown. Head shiny blue-black, the front more opaque, the vertex surrounding the antennal fossæ indistinctly reddish.

Pronotum pale yellow. Mesonotal præscutum shiny metallic blue-black, the humeral angles broadly but indistinctly reddish;

* The ocelli are amber coloured.

† Also third and fourth.